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ABSTRACT

A study examined the extent to which a 19-item short form of the Speech Evaluation Instrument (SEI) is a reliable instrument, what factor structure emerges from the analysis, and how that factor structure compares to that reported for the 30-item long form of the SEI. Subjects, 606 undergraduates enrolled in speech communications classes at two Arizona State University campuses, responded to portions of two video-taped speeches, using the short form of the SEI, which applied to presentational, rather than interactive, speech stimuli. Results indicated that the short form of the SEI is a reliable instrument when applied to presentational speech; that a four-factor structure emerged, dividing "superiority" into "competence" and "status" (dynamism, attractiveness, competence, and status); and that the factor structure for the short form differs from that of the long form in that the factors emerged in reverse order. Overall, analysis leads to the conclusion that the short form of the SEI warrants further development. (Three tables of data and 23 references are attached.) (RS)

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AN APPLICATION OF THE SEI SHORT FORM
TO PUBLIC SPEAKING EVENTS

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AN APPLICATION OF THE SEI SHORT FORM TO PUBLIC
SPEAKING EVENTS

Abstract

This paper reports factor analyses of the 19-item Short Form of the Speech Evaluation Instrument (SEI) developed by Zahn and Hopper (1985a). This instrument is based on the long form SEI, a 30 item speech evaluation instrument drawn from several language scales tapping 3 factors, superiority, attractiveness, and dynamism.

The Short Form SEI is supported for use in public speaking environments and for application to audio-visual stimuli. The 3-factor structure reported by Zahn and Hopper emerged in reversed order. When more freedom was given in the number of possible factors, a 4-factor solution emerged. The fourth factor divides superiority into two factors (competence and status). It is suggested that items be added to the scale to increase stability. Additional problematic issues are presented.

Introduction and Background

In 1985, Christopher Zahn and Robert Hopper reported their development of the Speech Evaluation Instrument (SEI) as "an omnibus measure . . . [that they recommended] as a way to make findings of various studies more comparable" (Zahn & Hopper, 1985a, p. 113). They also suggested that the SEI might be useful "as a general speech evaluation measure" (p. 120) but that the "reliability and stability of . . . [their] factor structures should be assessed further using other subjects and other speech samples" (p. 121). Although they indicate that the development of the SEI "remains incomplete," they present it "as a valid and comprehensive measure of speech evaluation," (p. 120) inviting those who are interested to write for a guide to its use. This "User's Manual" (1985b) presents a 19-item short form based on the 30-item instrument. This study extends the work of Zahn and Hopper (1985a & 1985b) toward a general speech evaluation measure by applying the Short Form SEI to presentational (public speaking) samples.

The study of auditor perceptions of speech communication events has an extensive history (e.g., Mulac & Rudd, 1977; Whitehead, Williams, Civikly, & Albino, 1974; Williams, Whitehead, & Miller, 1972). Some of the ways in which experimental speech events are presented come close to reality, while others seem quite removed from it. Authors report studying speech effects in typescripts devoid of most of the variables that make speech unique (e.g., Gundersen, 1971; Wills, 1961; Zahn & Hopper, 1987 Nov.); as motion pictures and video tapes (e.g., Gundersen & Hopper, 1975; Hildreth, 1953); as audio recordings (e.g., Haiman, 1949; Hovland & Weiss, 1951; Zahn & Hopper, 1985a); and occasionally as live communication events occurring in the real world (Gundersen, 1978).

Instruments devised to evaluate speeches are equally varied. Though one finds simple check sheets and Likert-style scales, semantic differential scales appear often. Some begin as a large number of "bipolar" terms gathered from subject populations (Osgood, Suci, & Tannenbaum, 1957), while others begin as an intuitively derived set of terms (Whitehead, 1968). In either case a large set of terms is used in rating an event (or events) and the data are factor analyzed. Researchers retain items that load according to their criteria of acceptance and give each factor a descriptive name.

Zahn and Hopper (1985a) gathered items from credibility scales (e.g., Bradac, Courtright, Schmidt, & Davies 1976; McCrosky & Young, 1981; Whitehead, 1968), language attitude studies (e.g., Whitehead, Williams, Civikly, & Albino, 1974; Williams, 1970; Williams, Whitehead, & Miller, 1972), dialect/ethnicity studies (Carranza & Ryan, 1975), and other sources. From a collection of 152 items they selected 56 for presentation and factor analysis. This analysis led to the SEI and later to the SEI (19-item) Short Form.

Although Zahn and Hopper (1985a) used audio recordings of conversations and interviews (interactive speech) to study language attitude variables, this research used video-taped samples of public speaking events as experimental stimuli and the 19-item Short Form SEI as the response instrument to address the following research questions:

1. To what extent is the Short Form SEI a reliable instrument.
2. What factor structure will emerge?
3. How will this factor structure compare to that reported by Zahn and Hopper (1985a) for the long form SEI?

Method

This study applied the Short Form SEI (Zahn and Hopper, 1985a & 1985b) to presentational, rather than interactive, speech stimuli. Undergraduate communication students used the Short Form SEI (Zahn & Hopper, 1985b) to respond to the opening portion of one of two different video-taped speeches.

Techniques and Procedures

Stimuli. Stimulus I was a videotape of the opening moments of a practice presentation of a lecture about "Study Skills" given by a professor of early middle-age. She wore a flowered dress with an over-jacket, stood behind a table-top lectern in a classroom with a chalkboard visible behind her. She addressed the camera as her imagined audience. For research use, the authors stopped this speech presentation at a natural break, "Any Questions?" (time = 00:02:45).

Stimulus II was a videotape of the introduction to a "slide show," a class assignment presented by a student in late middle-age, concerning her experiences communicating with the frail-elderly in an adult day-care center. She wore a striped dress, sat at the corner of a table with blank wall behind her, and addressed a real audience of her fellow students. She spoke to the camera infrequently. For use as a research stimulus, this presentation was cut after the speaker said: "If you'll dim the lights and turn on the projector---" (Time = 00:02:40).

The Speech Evaluation Instrument. Zahn and Hopper developed the Short Form SEI (1985b) to provide a less cumbersome tool than the original 30 item scale (1985a). Table 1 shows the 30 item SEI separated into the

factors of superiority, attractiveness, and dynamism reported by Zahn & Hopper (1985a). Asterisks in Table 1 identify the 19 items (word pairs) they chose for the Short Form SEI (1985b).

The Short Form SEI presented to subjects in this research was a half page document with the word pairs randomized for order and polarity. As in the Zahn and Hopper (1985a & 1985b) research, a seven point scale divided the word pairs.

Procedures. Undergraduate students enrolled in communication courses on two campuses of Arizona State University voluntarily and anonymously took part in this research. The testing occurred during regular class time in several classes on each campus. Class sizes ranged from 15 to over 200. Copies of the Short Form SEI were distributed in such a way that each student could choose to take one or not, and could choose to fill one out or hand it back unmarked. Subjects were not compensated or rewarded for their participation.

Oral instructions informed the students that they would see a portion of a video-taped speech and they would respond to this communication event using the form provided. Respondents found the stimulus phrase, "The speaker seemed," printed at the top of the form. When the presentation ended (either Stimulus I or Stimulus II) the students who chose to participate provided responses on the SEI form.

Following collection of the forms, one of the researchers disclosed the purpose of the study and focused attention on relationships between speech evaluation research and this specific course. Coded data from the Short Form SEI were analyzed using SPSS-X (1986).

Subjects. Of the 606 students who participated in this study, 357 responded to Stimulus I while 249 responded to Stimulus II. For Stimulus I, 17 subjects failed to disclose their sex, but those who did were divided almost equally--171 men and 169 women. The median age was 21 years. Twenty-eight per cent were enrolled in night classes at a branch campus--an upper-division institution. In this part of the sample, there were 106 freshmen, 79 sophomores, 66 juniors, 96 seniors and 10 subjects who were either unclassified or failed to provide class identification. For Stimulus II, seven students failed to disclose their sex, but the remaining 242 were equally divided. Their median age was 20. All were students in the basic communication course at the main campus institution. In this subset of the sample there were 100 freshmen, 74 sophomores, 50 juniors, 21 seniors and 4 who were either unclassified or failed to provide class identification.

Results

Initially data analyses followed the Zahn and Hopper procedures (1985a). Frequency distributions showed that both stimulus videos produced an acceptable spread of responses. Reliability estimate (Cronbach's alpha) for the total scale was .91. To further test reliability (in ways parallel to Zahn and Hopper, 1985a) the data were split in two different ways. The first analysis divided the scale in half (items in random order). Guttman split-half reliability was .90 with an alpha of .83 for part 1 (first 10 items) and an alpha of .85 for part 2 (last 9 items). The second analysis was based on a random sample of 50% of the responses. This provided a reliability estimate (Cronbach's alpha) identical to the total data set

(.91). In sum, all measures indicated that the Short Form SEI, as used in this application, was highly reliable.

Zahn and Hopper (1985a) reported a 3-factor solution derived by varimax rotation. I used similar procedures with the Short Form SEI. Initially, to test their factor structure, a 3-factor solution was sought, using Principal Axis Factoring. Results of this factor solution appear in Table 2.

This three factor solution differs from that of Zahn and Hopper in two ways. First, these factors appeared in reversed order (dynamism, attractiveness, superiority); second, one item (clear/unclear) appeared as the lowest loading item (.56) in dynamism (the first factor) rather than in superiority (their first factor) where its loading was .71. Three factors accounted for 50.5% of the variance in the subjects' ratings, with reliabilities of .88, .88 and .84 (see Table 2). The comparable figures reported by Zahn and Hopper (1985a) for the 30-item SEI are 64.6% of the variance in subjects' ratings, distributed across their 3 factors, with reliabilities of .95, .93, and .91 (see Table 1).

Zahn and Hopper (1985a) considered a variable or item "to be loaded on a factor if its loading was greater than 0.50 and all of its other loadings were smaller than 0.30" (p. 117). When I applied these criteria to a 3-factor solution using the data from the Short Form SEI, the superiority factor all but disappeared. Two items, upper-class/lower-class and rich/poor, were all that remained as a third factor.

Applying these same criteria (.50/.30) to a 4-factor solution produced the same distribution of items among factors as the 3-factor solution but

accounted for slightly more of the variance in subjects' ratings (52.3%). The fourth factor was undefined.

To further explore the factor structure (and because there were 8 "off-factor" loadings above .29 in this initial 3-factor solution), I entered the data into a 4-factor solution without restricting loading criteria. Except for slight changes in the order of items within factors, the first two factors remained unchanged from the 3-factor solution. The fourth factor emerged from splitting two items from the third factor--upper class/lower class and rich/poor. These seem to describe a status factor; whereas, the remainder of the Zahn and Hopper (1985b) superiority factor more nearly describes competence (intelligent\unintelligent; educated\uneducated; literate\illiterate; fluent\disfluent). Together, these 4 factors accounted for 54.7% of the variance in subjects' ratings, up from 50.5% for the 3-factor solution. This analysis suggests that the superiority factor is, in reality, composed of both competence and status dimensions (see Table 3). Further support for a 4-factor solution was provided by a scree test. Moreover, a random sample of 50% of the cases produced the same 4-factor solution, differing only in item order. Similarly, separate analyses of responses to each of the taped stimuli resulted in the same four factors. When the sample was split by respondent sex, the same four factors emerged for females. For males only one item differed, fluent\disfluent--the item with the largest "off-factor" loading (see Table 2). This item appeared in factor one (dynamism) rather than in factor three (competence). A comparable series of split-sample analyses of the 3-factor solution produced results that were not nearly so consistent.

For the 4-factor solution the reliabilities were as follows: for dynamism, Cronbach's alpha was .88; for attractiveness, .84; for competence, .84; and for status, .78. A 50% random sample of these data produced similar results: dynamism = .88; attractiveness = .81; competence = .81; status = .82.

In addition, a 5-factor solution produced the same four factors, differing only slightly in item order, with the fifth factor undefined. Finally, I went to the unusual extreme of placing these data into a 6-factor solution. The result was five defined factors, the fifth factor consisting of the single item, clear/unclear, from the first factor (dynamism), where it had "off-factor" loadings of .37 & .25. Except for this single change and minor differences in item order, the first four factors were identical to those found in the 4- and 5-factor solutions. The sixth factor was undefined, as were all additional factors through a 9-factor solution. Although I recognize that this analysis is extraordinary, I feel it lends further support to a 4-factor solution as the most plausible explanation of these data.

In summary, these data provide the following answers to the research questions stated in this study:

1. The Short Form SEI appears to be a reliable instrument when applied to presentational, rather than dialect speech.
2. The most credible factor structure to emerge in this study was a 4-factor solution: dynamism, attractiveness, competence, and status.
3. The factor structure that emerged differs from that reported by Zahn and Hopper (1985a) in two ways:

- a. the factors appeared in a reversed order, and
- b. the superiority factor split into two factors--competence and status.

Discussion

This study lends support to the work of Zahn and Hopper in developing the SEI. Although the Short Form SEI has some limitations, the similarity between the factor structure derived from my 606 subjects and that reported in the 1985a study is notable. Except for one item, my 3-factor solution closely parallels their results, although the factors appear in reverse order. However, these primary loadings are not as high as those reported by Zahn and Hopper (1985a) and secondary loadings are considerably higher (see Tables 1 & 2).

Given the overall similarity in findings, one explanation of the reverse order of factors might be that the audio-only stimuli used by Zahn and Hopper (1985a) reflect their focus on dialect differences among speakers (e.g., "black female from a southern state"; "Appalachian dialect"; "male midwestern graduate student"; "southwestern variety of American English"; p. 117). Raters hearing audio recordings of non-standard dialects may respond primarily to social superiority (competence/status) distinctions, rather than to attractiveness and dynamism. The Arizona raters both heard and saw an informative presentation given in a standard dialect and seem to have reacted primarily to the activity and attractiveness of the event. The Short Form SEI seems to be sensitive to dialect differences when they are present. When applied to standard dialect, it seems to be more sensitive to dynamism and attractiveness.

Zahn has indicated an awareness of this issue. "It may be that listeners use those [competence and status] dimensions independently when confronting formal or public communication but [combine them] for nonstandard speech or interpersonal/conversational contexts" (Zahn, C. J., Personal Correspondence, September 30, 1987). A similar line of reasoning, advanced in a different context by Gudykunst and Lim (1986), suggested that predictions about communication from total strangers may be based on group membership data. Stimuli used in both the Zahn & Hopper (1985a) study and in this study were, technically, from strangers; however, their dialect-marked stimulus materials offer more obvious group membership cues, which might encourage the perception of status differences. Competence and status may be subsets of superiority that emerge when the dialect of the speaker is sufficiently standard as to be unnoticed. For example, Street, Mulac and Wiemann (1988) posit that "the degree of speech similarity between interactants influences participants' social evaluations of partners" (p. 357). The very nature of a superiority factor suggests a "better than" or a "different from" evaluation, which is only germane when differences from some standard are perceived. In this study, the stimuli, delivered in a standard dialect, elicited competence and status distinctions only as the third and fourth factors. The Short Form SEI, in this application, proved primarily sensitive to the dynamism and attractiveness factors, the importance of which emerged when "different from" or "better than" distinctions were not obvious. The discovery of duality in the superiority factor is not entirely surprising. There is intuitive support for this split factor in the examination of the items in it. "Rich" and "upper class" are conceptually different from the remaining

items in the factor (literate, intelligent, educated, friendly). Zahn and Hopper (1985a) evidently had a suspicion of this when they reported: "Raters apparently define superiority as a blend of social status, intellectual achievement, and the speech characteristics of advantaged and educated members of society" (p. 119). The nature of the superiority factor defined by Zahn and Hopper (1985a, 1985b & 1987) must be considered somewhat suspect in the Short Form SEI, barring substantiation or elimination of its duality.

As development of the Short Form SEI progresses, attention needs to be focused on item choices. For instance, in spite of almost universal agreement on clarity and fluency as important communication variables, my analysis suggests that neither clear/unclear nor fluent/disfluent are stable items in the Short Form SEI. Personal conversations with both Hopper and Zahn (September, 1987) indicate that they too are dissatisfied with the first of these items.

I found another question vexing. Not only was selection of the original 152 items based on unstated criteria, the basis for their reduction to 56 is only partially reported and an examination of Table 1 leaves one wondering what criteria were used for some of the choices of items included in the Short Form SEI (see asterisks in Table 1). Zahn and Hopper state that their selection of the 56 items from which they derived the SEI was based on "redundancy and sensibility," (1985a, p. 117). Nonetheless, I question the inclusion of items such as "talkative/shy," which may not represent a consistent conceptual continuum. "Talkative," as a communication variable, is more nearly the opposite of "quiet" or "mute." "Shy" might well be the opposite of "courageous" or "brazen."

Even though the original items were drawn from other sources, it may be advisable to eliminate, modify, or rewrite several. The SEI is yet in its infancy. Both forms are potentially useful, and will be strengthened by greater attention to the items that comprise them. The apparent empirical soundness of both SEI instruments is laudable, and attention to lexical issues can only improve them.

Another issue is troubling. As noted in the introduction of this article, there are reports that subjects in the Zahn and Hopper research responded to the phrase, "the speaker sounds," (Zahn & Hopper, 1985a, p.116) and "the speaker sounded," (Zahn & Hopper, 1985b, p. 6) in evaluating the experimental stimuli. In the published accounts, it is not clear which instruction was given under which circumstance.

This may not be a minor issue. Logically, a different set of expectations is called for in each case. In addition, focusing the attention of subjects on the "sounds" of speech (present or past tense) may predispose the auditor to perceive paralinguistic differences, rather than permitting a more holistic response to the stimulus, even though the stimulus may be only an audio recording. I suggest agreeing on a consistent phrase and printing it at the top of every form, as was done in this research.

Based on these analyses, the Short Form SEI falls short of the findings reported by Zahn and Hopper (1985a) for the full SEI--in factor loadings, reliability, and ability to explain variance in the data. It may well be useful, however, in environments other than those selected by the authors. It certainly has applications beyond the audio recordings used by Zahn and Hopper (1985a). New applications await testing and insertion of

items more appropriate and effective in measuring speech in standard dialects, as well as additional items designed to describe more adequately the two factors evident in the Zahn and Hopper (1985b) superiority factor. Items to flesh out the status factor might include leader/follower, admirable/despicable, cultured/uncultured, and advantaged/disadvantaged.

Overall, these analyses have lead to the conclusion that the Short Form SEI warrants further development. The Short Form SEI seems an excellent synthesis of dialect/ethnicity/credibility tools, yet it is limited by the items loaded into it. Despite Zahn and Hopper's (1985a) suggestion that the SEI may be "an omnibus measure" (p. 113) and "a general speech evaluation measure" (p. 120), I suggest that the Short Form SEI is not yet appropriate to these applications. On the other hand, a purified set of items might lead to a more useful instrument, perhaps reflecting all 4 factors evident from these analyses. I encourage the continued refinement of the Short Form SEI and hope to contribute to that effort.

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Table 1. Results of Zahn and Hopper (1985a) factor analysis.

Variable	Factor I (Superiority)	Factor II (Attractiveness)	Factor III (Dynamism)
1. Literate/Illiterate	.88*	.01	.14
2. Educated/Uneducated	.87*	.04	.10
3. Upper-class/Lower-class	.84*	.01	.15
4. Rich/Poor	.80*	.01	.13
5. Intelligent/Unintelligent	.78*	.08	.05
6. White-collar/Blue-collar	.72	.03	.15
7. Clear/Unclear	.71*	.06	.16
8. Complete/Incomplete	.69	.09	.21
9. Fluent/Disfluent	.69*	.06	.23
10. Organised/Disorganised	.69	.05	.15
11. Experienced/Inexperienced	.68	.04	.24
12. Advantaged/Disadvantaged	.68	.11	.14
13. Sweet/Sour	.04	.80*	.05
14. Nice/Awful	.03	.78*	.01
15. Good-natured/Hostile	.04	.78*	.07
16. Kind/Unkind	.04	.77*	.01
17. Warm/Cold	.16	.76*	.10
18. Friendly/Unfriendly	.14	.75*	.09
19. Likeable/Unlikeable	.02	.71	.14
20. Pleasant/Unpleasant	.18	.69	.01
21. Considerate/Inconsiderate	.22	.62	.14
22. Good/Bad	.18	.62	.11
23. Honest/Dishonest	.23	.61	.06
24. Active/Passive	.00	.05	.80*
25. Talkative/Shy	.23	.06	.80*
26. Aggressive/Unaggressive	.06	.16	.76*
27. Enthusiastic/Hesitant	.14	.21	.74*
28. Strong/Weak	.27	.06	.72*
29. Confident/Unsure	.26	.02	.70*
30. Energetic/Lazy	.03	.21	.68
Eigenvalue	11.13	4.76	3.47
% of variance accounted for	37.10	15.90	11.60
Reliabilities	.95	.93	.91
Factor pattern correlations			
Factor I	1.00	—	—
Factor II	.34	1.00	—
Factor III	.16	.30	1.00

* = Items selected by Zahn and Hopper for 19-item short form.

n = 572

Table 2. Results of Gundersen 3-factor analysis.

Variable	Factor I (Dynamism)	Factor II (Attractiveness)	Factor III (Superiority)
1. Strong/Weak	.73	.13	.33
2. Aggressive/Unaggressive	.73	.00	.24
3. Active/Passive	.72	.10	.23
4. Confident/Unsure	.70	.12	.36
5. Enthusiastic/Hesitant	.65	.26	.17
6. Talkative/Shy	.57	.03	.03
7. Clear/Unclear	.56	.26	.36
8. Sweet/Sour	.12	.70	.20
9. Friendly/Unfriendly	.05	.70	.26
10. Kind/Unkind	.09	.64	.13
11. Nice/Awful	.17	.64	.31
12. Good-natured/Hostile	.00	.59	.13
13. Warm/Cold	.32	.57	.16
14. Intelligent/Unintelligent	.32	.29	.70
15. Educated/Uneducated	.17	.31	.68
16. Literate/Illiterate	.17	.30	.61
17. Upper-class/Lower-class	.28	.13	.53
18. Fluent/Disfluent	.40	.27	.48
19. Rich/Poor	.23	.17	.45
Eigenvalue	6.90	1.94	.76
% of variance accounted for	36.30	10.20	4.00
Reliabilities	.88	.84	.84
Factor pattern correlations			
Factor I	1.00	—	—
Factor II	.28	1.00	—
Factor III	-.54	-.55	1.00

n = 606

Table 3. Results of Gundersen 4-factor analysis.

Variable	F-I (Dyn.)	F-II (Attr.)	F-III (Comp.)	F-IV* (Stat.)
1. Aggressive/Unaggressive	.74	.00	.21	.09
2. Strong/Weak	.74	.13	.26	.19
3. Active/Passive	.72	.10	.14	.18
4. Confident/Unsure	.71	.11	.36	.08
5. Enthusiastic/Hesitant.	.65	.27	.09	.15
6. Clear/Unclear	.58	.25	.37	.07
7. Talkative/Shy	.57	.03	-.02	.08
8. Sweet/Sour	.12	.72	.09	.20
9. Friendly/Unfriendly	.05	.69	.28	.06
10. Kind/Unkind	.09	.64	.15	.02
11. Nice/Awful	.17	.63	.32	.06
12. Good-natured/Hostile	.00	.59	.12	.06
13. Warm/Cold	.32	.58	.08	.16
14. Educated/Uneducated	.18	.31	.64	.23
15. Intelligent/Unintelligent	.34	.29	.63	.26
16. Literate/Illiterate	.18	.29	.62	.17
17. Fluent/Disfluent	.42	.25	.52	.08
18. Upper-class/Lower-class	.26	.12	.26	.72
19. Rich/Poor	.20	.19	.16	.71
Eigenvalue	6.90	1.90	.86	.66
% variance accounted for	36.50	10.20	4.50	3.50
Reliabilities	.88	.84	.84	.78
Factor pattern correlations				
Factor I	1.00	—	—	—
Factor II	.29	1.00	—	—
Factor III	-.44	-.37	1.00	—
Factor IV	-.39	-.45	.36	1.00

* F-I = Factor I, Dynamism

F-II = Factor II, Attractiveness

F-III = Factor III, Competence

F-IV = Factor IV, Status

n = 606